

Third Work Shop

Climate Change Adaptation in Transboundary Watercourses

Vulnerability Assessment in Colombian Transboundary Basins

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MAIN BORDER RIVER BASINS IN COLOMBIA , MAIN CLIMATIC AND HYDROLOGICAL FEATURES



MAIN COLOMBIAN TRANSBOUNDARY RIVER BASINS

ORINOCO RIVER BASIN (Colombia - Venezuela)

AMAZONAS RIVER BASIN (Colombia - Brazil - Perú)

CATATUMBO RIVER BASIN (Colombia - Venezuela)

Other minor basins

AMAZONAS RIVER BASIN EXAMPLE



BASIC DATA AMAZONAS RIVER BASIN IN COLOMBIA

Area: 483.164 km²

Total Population 960.239 inhabitant
(Sinchi 2007, based on DANE 2005)

Indigenous population: 86.417 inhabitant
(Sinchi 2007, based on DANE 2005)

Afro population 28.016 inhabitant
(Sinchi 2007, based on DANE 2005)

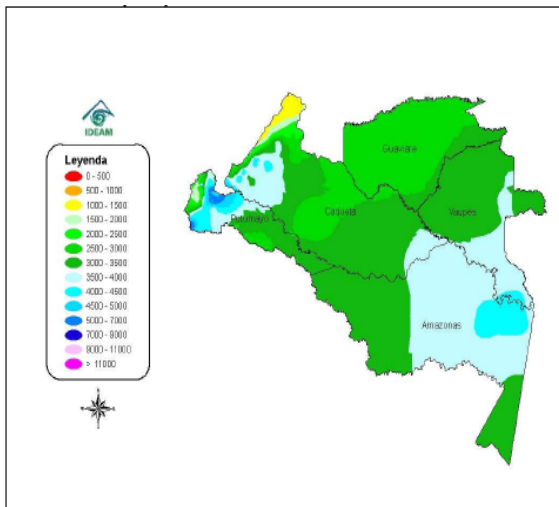
78 municipalities

Source: Amazon Institute of Scientific Research (Sinchi), SIATAC

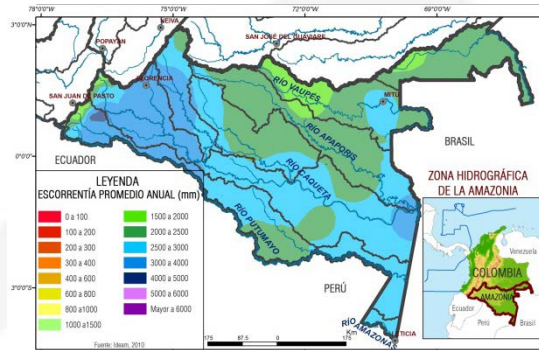
MAIN BORDER RIVER BASINS IN COLOMBIA , MAIN CLIMATIC AND HYDROLOGICAL FEATURES



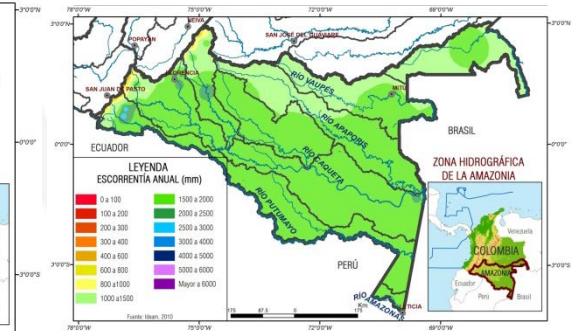
ANNUAL PRECIPITATION (mm)



Annual average flow



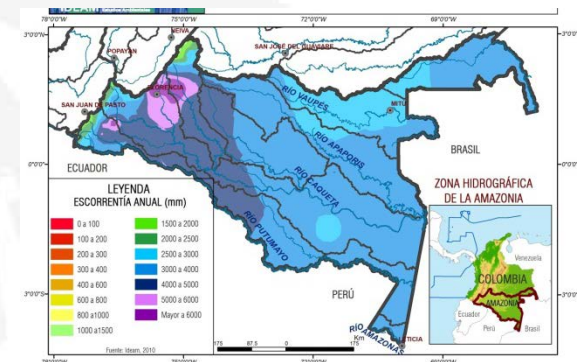
Annual dry condition flow



Hydrological Monitoring network



Annual humid condition flow



The area of the Amazon basin produces 38% of the country's annual average flow (27830 m³/s), divided as follows: 29% from the Andean region (Caquetá, Putumayo, and Yaré Caguan). 71% is generated in the Amazon floodplain (Apororis and Vaupés rivers).

Annual average hydrological conditions pass from 893.389 million cubic meters to 546,442 in dry conditions

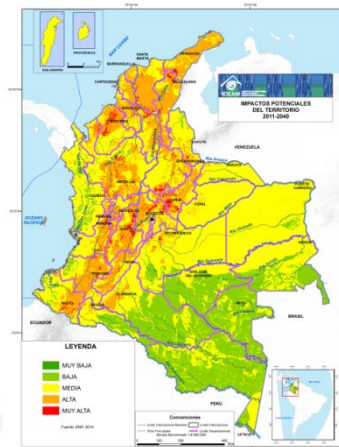
RESULTS FROM SECOND NATIONAL COMMUNICATION IN BORDER RIVER BASINS

AMAZONAS RIVER BASIN INFORMATIO AVAILABLE EXAMPLE

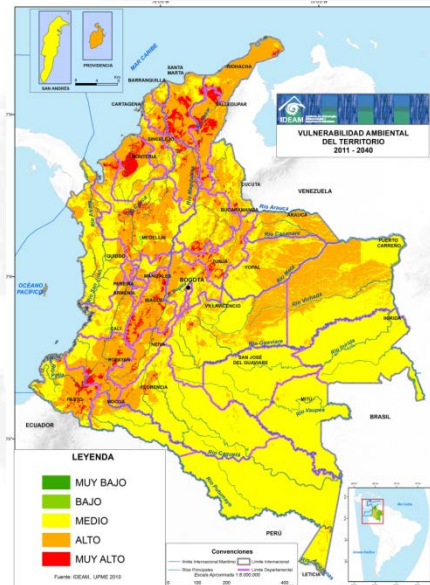
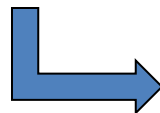
SECOND NATIONAL COMMUNICATION

CLIMATE CHANGE SCENARIOS MULTIMODEL- SCENARIOS

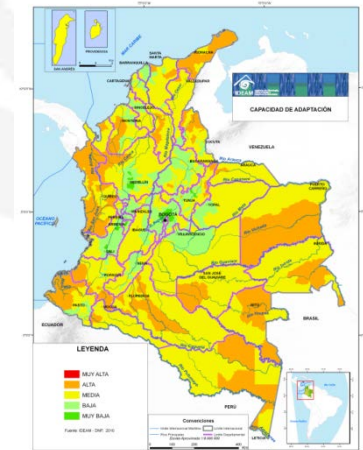
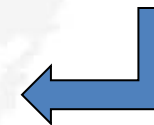
Environmental vulnerability of the territory (Land Potential impacts 2011-2040 + Adaptation Capacity, Resilience)



Land Potential impacts 2011-2040



Environmental vulnerability of the territory 2011-2040

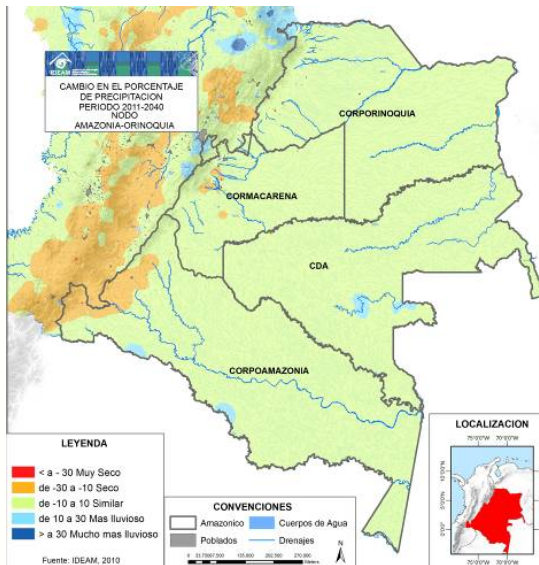


Adaptation Capacity Resilience

RESULTS FROM SECOND NATIONAL COMMUNICATION IN BORDER RIVER BASINS

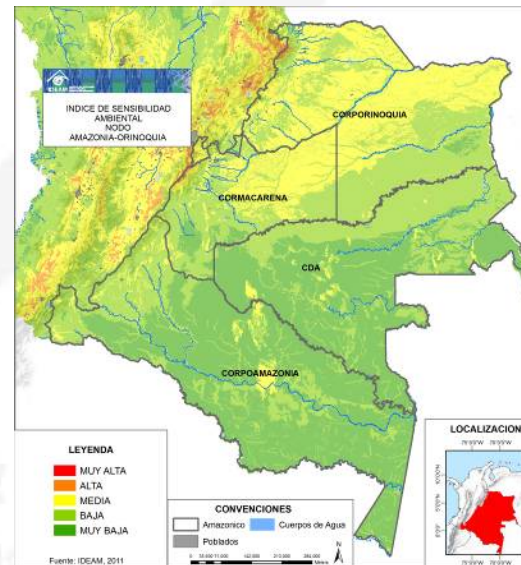
AMAZONIA Y ORINOQUIA NODE

Precipitation Change



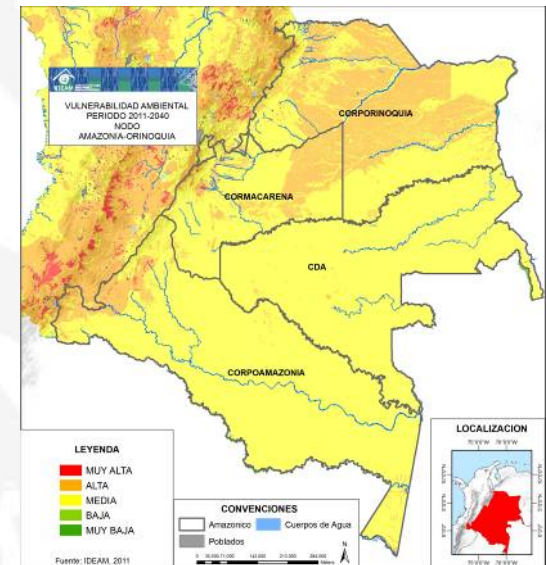
Change in precipitation for the period 2011-2040 Amazon-Orinoco Node

Climate Change Sensibility



Environmental Sensitivity Index Map Amazon-Orinoco Node

Climate Change Vulnerability



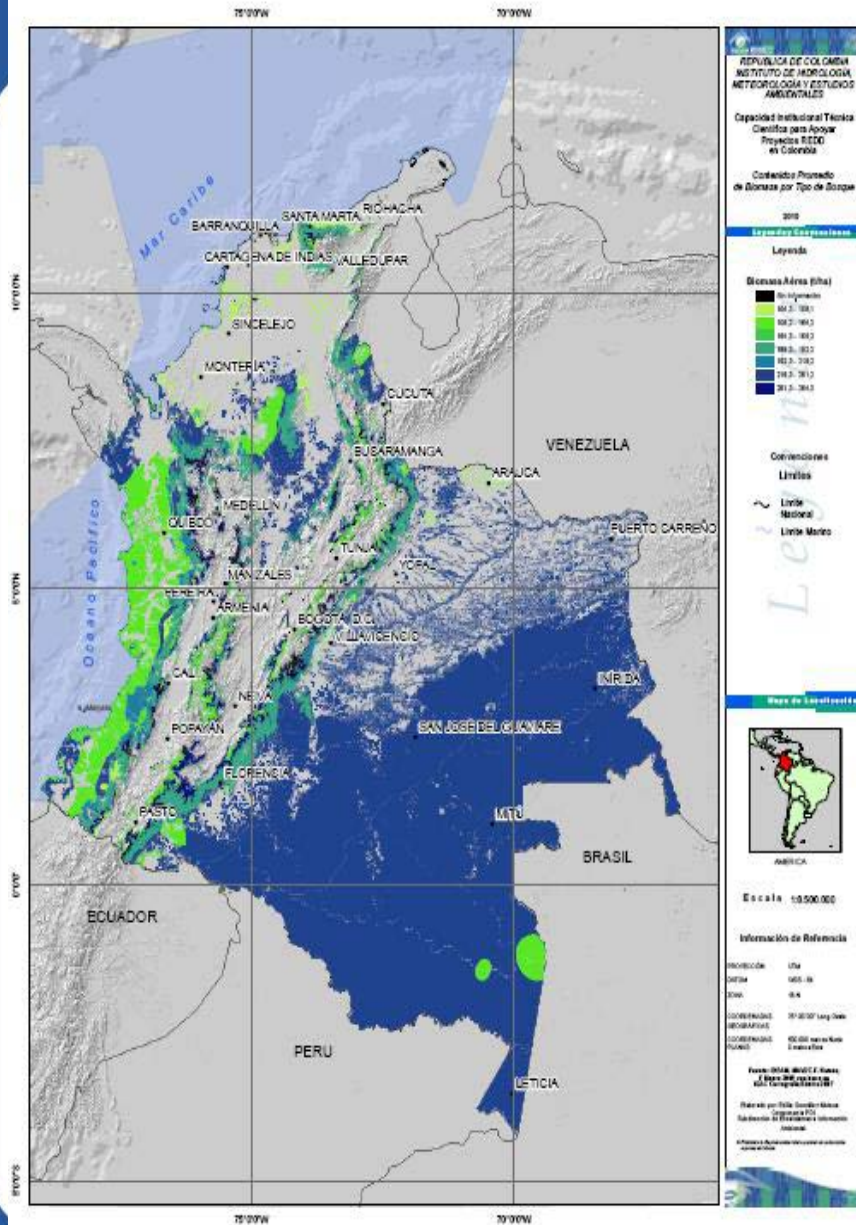
Environmental Vulnerability Map 2011-2040 Amazon-Orinoco Node

Temperature Increment 0,01 °C/ year

Biomass estimates Stocks / Carbon



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Biomass estimates Stocks / Carbon

The average carbon stock in aboveground biomass of natural forests in Colombia varies between 52.2 t C / ha and 132.2 t C / ha. The potential of carbon stored in aboveground biomass in natural forests in Colombia, amounting to 7,301,805,294 t C, representing 26,797,625,427 t CO₂e that have not yet been released into the atmosphere.

DIFFICULTIES ENCOUNTERED - TRANSBOUNDARY ASPECTS

Perhaps there isn't a transboundary mitigation or adaptation project with other countries, there is a problematic that challenge us to include that point of view

Transboundary basins Colombia - Ecuador

There have been approaches to address issues Mira-Mataje, San Miguel-Putumayo y Carchi-Guaitara River Basins.

Aspects to define:

Strip from the border to be used for hydrological studies.

Ratify and approve work procedures, to ensure exchange of information
The Neighborhood Commission has a seat of several institutions

DIFFICULTIES ENCOUNTERED - TRANSBOUNDARY ASPECTS

Transboundary basins Colombia – Brazil - Perú

Amazonas river basin flooding over Leticia, Nazareth.

Lateral erosion-sedimentation troubles of Amazonas river on Leticia

How can increases or reduce the climate change that problem?

What could be the effect of climate change over climate variability?

(drought and flood periods)

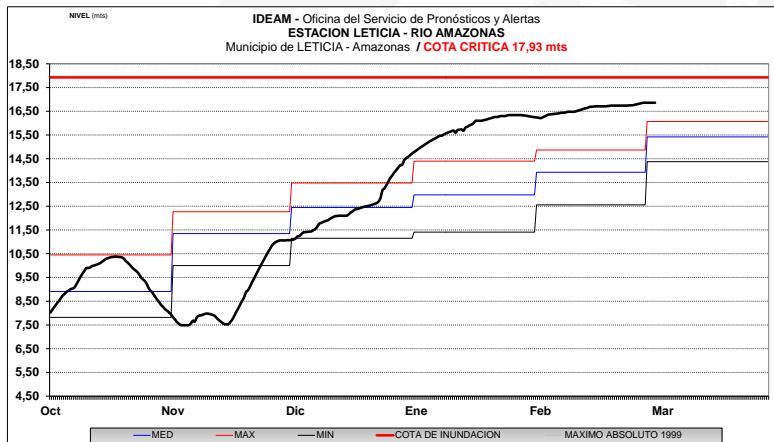


Photo: National Natural Parks, Colombia

PROYECT EXAMPLES



PILOT PROJECT RESULTS OF ADAPTATION IN THE COUNTRY

(Not over transboundary basin, but as reference)

1. Vulnerability of bio-geophysics and socio-Economics resources due to the sea level rise change in coastal zones of Colombia.
2. National Pilot Project to climate change adaptation (INAP).
3. Joint Program Ecosystems Integration and Adaptation to climate change in the Macizo Colombiano

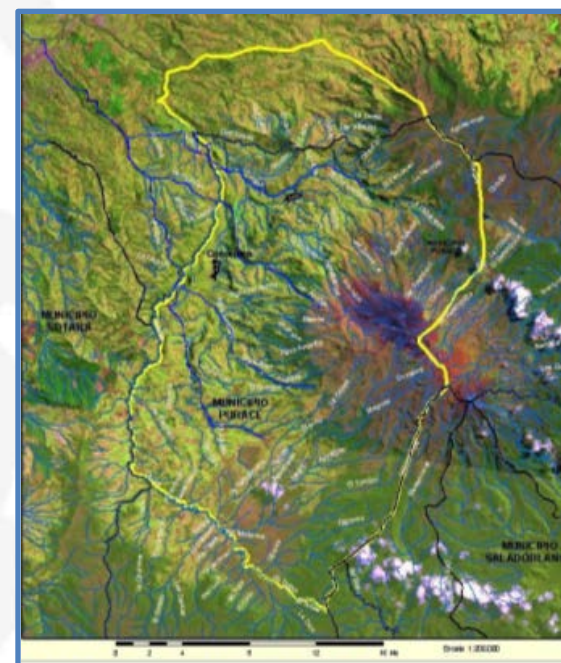
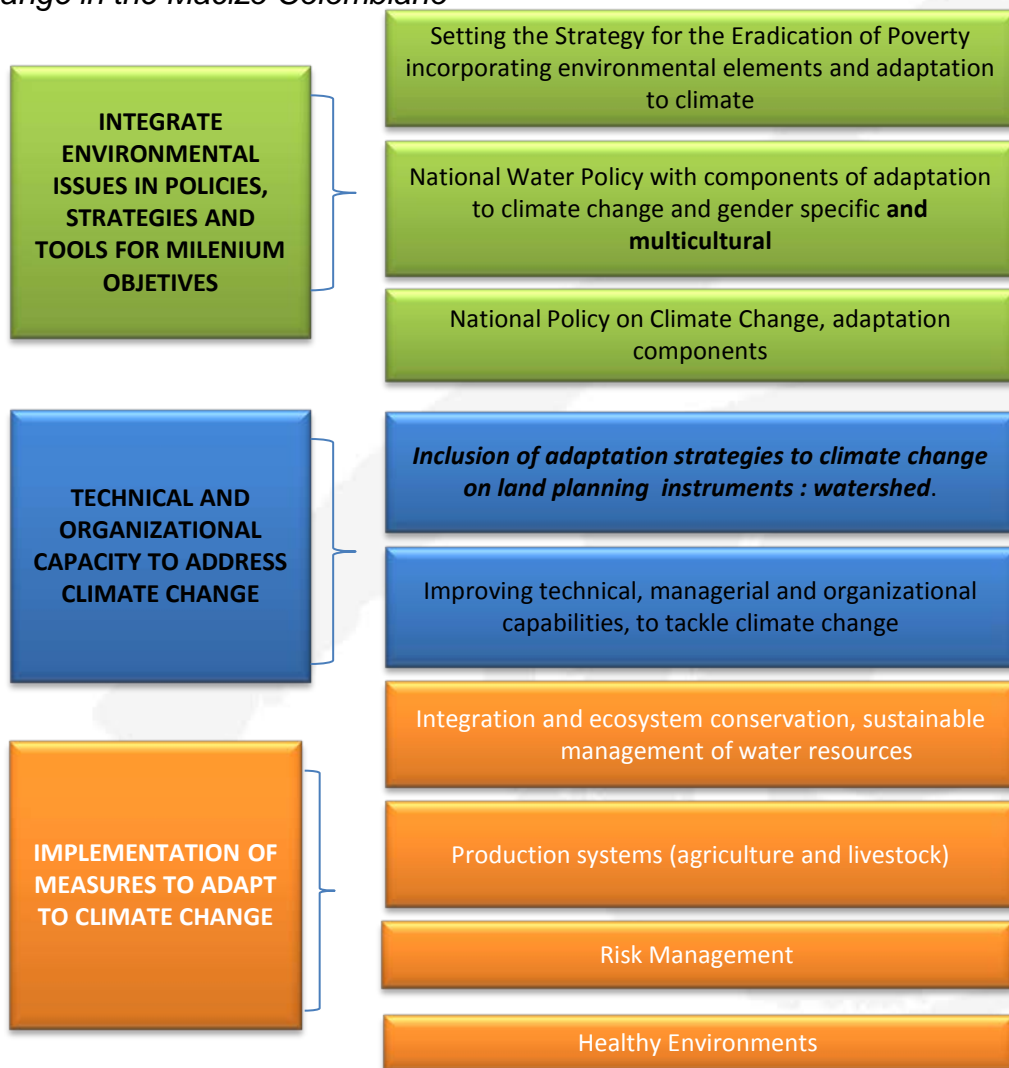
LESSONS LEARNT THAT COULD BE OF USE FOR OTHER PROJECTS

From the "*Joint Program Ecosystems Integration and Adaptation to climate change in the Macizo Colombiano*"

- Methodological proposal to allow build from the local and the communities, adaptive strategies.
- Upper basin of the Cauca River in the municipalities of Puracé and Popayan.
- Seeks to coordinate policies related to poverty, climate change and integrated management of water resources.

LESSONS LEARNT THAT COULD BE OF USE FOR OTHER PROJECTS

From the “*Joint Program Ecosystems Integration and Adaptation to climate change in the Macizo Colombiano*”



LESSONS LEARNT THAT COULD BE OF USE FOR OTHER PROJECTS



From the “*Joint Program Ecosystems Integration and Adaptation to climate change in the Macizo Colombiano*”

Production systems (agriculture and livestock)



Ongoing project initiatives

Project topic: Economic Impact of Climate Change in Colombia

Using the model "AquaCrop" to estimate crop yields in Colombia under the Economic Impact Study on Climate Change (EIECC).

(National Planning Department, Ministry of Agriculture and Rural Development and IDEAM, agricultural sector)

PURPOSE:

Contribute to the definition of public policies that include adaptation strategies and mitigation of CC to increase the resilience of communities and their livelihoods to contribute to the fight against poverty and achieving the Millenium Objectives.

Identifying the effects and impacts of climate variability and change on agriculture, specifically crop rice irrigation and technified corn. Part of the project involve area over Meta department (**Portion of Meta river basin**) to implement the model AquaCrop of FAO.

CHALLENGES

The information and conflicting interests between the guilds in the ministry of agriculture and Ideam, creates a difficult barrier to overcome a technical level.

LESSONS LEARNT THAT COULD BE OF USE FOR OTHER PROJECTS



From the “*Joint Program Ecosystems Integration and Adaptation to climate change in the Macizo Colombiano*”

Production systems (agriculture and livestock)



Ongoing project initiatives

Project topic: Economic Impact of Climate Change in Colombia

Vulnerability agriculture

(National Planning Department, Ministry of Agriculture and Rural Development and IDEAM)

PURPOSE:

Joining inter-institutional forces to support and strengthen research, technological development and innovation on climate change and climate variability for the Colombian agricultural sector

CHALLENGES

Based on the methodology of vulnerability analysis of the second National Communication on Climate Change, generate an advance and strengthen the model to achieve a sectorial analysis.

LESSONS LEARNT THAT COULD BE OF USE FOR OTHER PROJECTS



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Ongoing project initiatives

PROJECT

Vulnerability agriculture (CDKN)
AVA Project - Agriculture, Vulnerability and Adaptation
(Not over a transboundary area until now)

PURPOSE:

Institutional and multisectoral analysis of vulnerability and adaptation to climate change for agriculture in the Cauca River upstream to impact adaptation policies.

CHALLENGES

Support, strengthen and lead technical cooperation agreements and national and international scientific through strategic alliances search.

PROJECT

Agriculture Vulnerability
(National Planning Department, Ministry of Agriculture and Rural Development and IDEAM)

(Not over a transboundary area until now)

PURPOSE:

Vulnerability and adaptation to climate change for small agricultural producers

CHALLENGES

The difficulty of technology transfer and synergy of other factors related to globalization, are challenging to design effective adaptation measures.